STOCK MARKET DEVELOPMENT IN AFRICA: IS THERE A NEED FOR A CROSS-REGIONAL COLLABORATIVE STOCK EXCHANGE?

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ABSTRACT

This paper explores the relationship between stock market development and economic growth in Africa. It provides a theoretical basis for establishing the channel through which stock market affect economic growth and this is empirically examined by using regression analysis to test if indeed there is such a relationship. Three stock market indicators, namely market capitalization as a percentage of GDP, turnover ratio and numbers of listed shares, are used to test whether they have any impact on economic growth, together with other explanatory variables of growth such as foreign direct investment, inflation and credit. The study uses data on four countries: Kenya, Nigeria, Egypt and South Africa for the period 1991-2010. Furthermore, the study investigated whether a collaborative regional cross-listing will improve the stock market development of the country of secondary listing. Dummy variables and interactive variables are used in regressions to test for collaborative relationships between the exchanges in the region.

The results show that indeed there is an association between stock market development and economic growth. Results also show that cross-listing within a region can boost stock market development, which in turn boosts economic growth. Africa does not have a lot of cross-listings but from this paper, the evidence suggests that it is a path worth exploring.

Keywords: Stock Market Development, Economic Growth, African Stock exchange

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. ISSUES

Africa's stock exchanges have been described as small, illiquid and poorly regulated (Mensah, 2003). There is however an exception, such as the Johannesburg Securities Exchange (JSE), which has been operating since 1887. Since its formation, the JSE has managed to attract the world's attention as well as the reputation it is currently holding. It also faces some of similar challenges as other exchanges in Africa. For example, it suffers low rate of turnover, which measures liquidity, (Irving, 2005). Of all the exchanges in Africa, the JSE is by far the best performing stock exchange per the market capitalization. However, the African Securities Exchange Association (ASEA) makes an astonishing revelation that the JSE is about thirty percent better than the exchanges of its neighbouring countries (ASEA, 2009).

The Egypt Stock Exchange (EGX), Nairobi Stock Exchange (NSE), the Nigerian Stock Exchange (NISE) and the Tunisian Exchange have been operating for many years; you could almost compare their length of existence to that of the JSE. According to ASEA, of all four exchanges, EGX comes second to the JSE in terms of performance. The other three have been very stagnant over the years. In 2008 the NSE only listed about 56 companies which are relatively small for a stock exchange that has been in operation since 1954.

Africa in its totality has twenty six exchanges, including the exchanges listed above. The remaining twenty one are fairly new and still trying to learn the ropes of how to become successful exchanges. They are still inundated with challenges but that is expected as they have not been in the field for long. This highlights that Mensah (2003) was correct in describing the exchanges as small, illiquid and poorly regulated, having acknowledged that I cannot overlook the performance of two to five exchanges which have been operating relatively well within the region. As a matter of fact there is empirical evidence that it is not the size or volatility of the stock market that matters for growth, but the ease with which shares can be traded (Levine & Zervos, 1996). The question thus becomes how do African stock exchanges improve the manner in which they trade and operate?

1.1 Background Literature

For the past years there has been a growing literature that there is a link between financial stock market and economic growth (Schumpeter, 1911; Greenwood and Smith, 1997; Levine , 1991). This claim has thus resulted in the topic being one of the most researched fields. Most have claimed that in the long run an efficiently running stock exchange should be able to boost its economic growth. The capital market plays an essential role in the growth of commerce and industry which ultimately affects the economy of the country to a large extent. (Nazir et al., 2010).

This research focuses more on the African stock exchanges which are largely characterized by low operating efficiency. More so because the entire region needs to lessen its dependency on the banking institutions as the only means of raising funds and sourcing capital. In developing countries debt financing is not always available to all individuals but only to a limited group of companies and individual investors. Well developed financial markets can bring about funding source diversification and other benefits, such as lower cost of capital (Ojah and Pillay, 2009). Greenwood and Smith (1997) have shown that large stock markets can decrease the cost of mobilizing savings, thus facilitating investment in the most productive technologies.

Africa is showing promising prospects of becoming the next emerging region hence its stock exchanges require close scrutiny. Korajczyk (1996) shows that the emerging markets have become more integrated with world capital markets during the past years. The blossoming of emerging stock market has attracted the attention of international investors. For several years now, policy makers in Africa have been encouraged to step up Africa's integration into the world economy, so as to benefit from expanding world trade and gain access to the private capital needed to accelerate investment and growth. This advice has held up the experience of the successful Asian economies as examples of the advantages and integration into the globalized economy (Ouattara, 1998).

The crux of this paper is to investigate the link between stock market development and economic growth. North (1991) posits that the creation of a stock exchange can increase economic growth by lowering the costs of exchanging ownership rights in firms, an important part of some institutional stories about the economy. A new stock can also increase economic growth by reducing holdings of illiquid assets and increasing the growth rate of physical capital, at least in the long run. In the short run, however, the equilibrium response of the capital stock to a new stock exchange can be negative because the opening of an exchange can increase households'

wealth and raise their contemporaneous consumption enough to temporarily lower the growth rate of capital (Bencivenga and Smith , 1991).

Information asymmetry is another key issue; it is a condition where relevant information is only known by some privileged parties involved. This problem causes markets to be inefficient, since all the markets' participants do not have access to the information they need for their decision making process. A new stock exchange can increase economic growth by aggregating information about firms' prospects, thereby directing capital to investments with positive returns. These effects of a stock market opening result in a measured increase in productivity. Stock exchange exists for the purpose of trading ownership rights in firms, and a new stock exchange may increase productivity growth for this reason as well (Greenwood and Jovanovic,1990). Kyle (1984) also supported the above observation by arguing that liquid stock markets can increase incentives for investors to get information about firms and improve governance.

Another important contribution of stock exchange to economic growth is through global risk diversification. Opportunities for risk reduction through global diversification make high risk, high return domestic and international projects viable and consequently allocate savings between investment opportunities more efficiently (Deveraux and Smith, 1994).Liquidity also plays a vital role as it eases the tension by providing an asset to savers that they can quickly and inexpensively sell. Stock market liquidity is essential for growth.

Almost every topic researched has different schools of thought. Bhide (1994) argues that stock market liquidity may negatively influence corporate governance because very liquid stock market may encourage investor myopia. Since investors can easily sell their shares, more liquid stock markets may weaken investors' commitment and incentive to exert corporate control. In other words, instant stock market liquidity may discourage investors from having long term commitment with firms whose shares they own and therefore create potential corporate governance problem with serious ramifications for economic growth.

Further to Bhide's research, Singth (1997) has also pointed out that the actual operation of the pricing and takeover mechanism in well functioning stock markets lead to a short and lower rates of long term investment. It also generates perverse incentives, rewarding managers for their success in financial engineering rather than creating new wealth through organic growth. Binswanger (1999) also supported the above inference by pointing out that the stock market undervalues long term investment; managers are not encouraged to undertake long term investments since their incentives are judged by performance of a company's financial assets, which may harm long run prospects of companies.

1.2 Research Problems

To run a successful stock exchange, not only do you need investors to be actively participating in the exchange, you also need to create a sound and safe investment environment for them. Of all the problems that relate directly to the overall performance of the exchange the ones listed below stand out in the case of Africa:

Macroeconomic and political instability: the prevailing evidence is that instability such as high and unpredictable rates of inflation act as an impediment to stock market development. Political risk is often associated with lack of quality institutions, such as law and order, and democratic accountability, which in turn engender increased risk premium in the stock market. High macroeconomic and political instabilities lead to high volatility in the financial markets (Senbert and Otchere, 2008)

In 2011 alone we had two cases of social and political unrest in Egypt and Libya, which led to temporary disruption of their economic activity. Real GDP for Egypt was recorded as 1.6% in 2011/2010, down from 5.1% in 2009/2010 while the budget deficit rose to 10% from 8% in the previous years. In Libya inflation rose from 4.7% in 2010 to 12.1 % in 2011, their real GDP suffered hugely as they recorded a negative growth of about 19%. (ASEA, 2008/9)

Currency fluctuations: high levels of currency value fluctuations are endemic to African economies, creating an impediment to foreign investment in the region. These currency fluctuations can induce an important risk factor in the African stock market scene. In fact, there is evidence that currency depreciation has an adverse impact on the performance of African stock markets (Senbert and Otchere, 2008)

Regulatory framework: Stock exchanges need to adhere to certain regulation measures like having a formal supervisory authority. Unfortunately most exchanges in African have robust regulatory frameworks which need to be improved upon, especially in the area of effective implementation of the regulations on their book (Mensah, 2005)

Market Infrastructure: This comprises of environment as well as systems needed to facilitate trade and custody of securities. With proper market infrastructure in place, trade will happen with ease and can also improve the speed of trades confirmation and settlements (Vitta, 1998). In most African markets, the state of the art in-market infrastructure still lacks established technology and norms (Mensah, 2005)

Some of the African stock exchanges still use manual systems which poses impediments to operation efficiency as well as liquidity, as these impediment effects create bottlenecks in terms of slowing down trading and information production of stock market. It is vital for Sub-Saharan African stock exchanges to adapt fast to automation and electronic systems. Below is a table of how Africa is looking in terms of infrastructural indicators.

Table 1: Infrastructural indicators of African stock exchanges

Country	Clearing and Settlements	Foreign Participation	Trading System
Algeria	Electronic	Yes	Electronic
Botswana	Manual	Yes	Manual
Coted'Ivoire	Electronic	Yes	Electronic
Egypt	Electronic	Yes	Electronic
Ghana	Manual	Yes	Manual
Kenya	Manual	Yes	Electronic
Malawi	Manual	Yes	Manual
Mauritius	Electronic	Yes	Electronic
Morocco	Manual	Yes	Electronic
Namibia	Manual	Yes	Electronic
Nigeria	Electronic	Yes	Electronic
South Africa	Electronic	Yes	Electronic
Swaziland	Manual	Yes	Electronic
Tanzania	Electronic	Yes	Electronic
Uganda	Manual	Yes	Manual
Zambia	Electronic	Yes	Electronic
Zimbabwe	Manual	Yes	Manual

Adapted and updated from Senbert and Otchere(2010)

Human resource base: Exchange processes need very specialized services of a dealer, investment advisers, brokers, corporate financiers, etc. All these services require training and knowledge which is mostly not available in many African countries. As a result, they need to be sourced from other countries which have well-developed capital markets (e.g The United State of America and London).

***Investor base*:** The most important problem faced by the entire region is the ability to attract investors both locally and internationally. Awareness needs to be created locally that there are other alternative investments instead of leaving one's saving in a call deposit account where in it earns small interest over several years.

Most African countries are infamous with problems such as political unrest, high inflation, high unemployment, etc, and I acknowledge that these problems seem ever present in Africa. However there are many improvements in some parts of Africa with regard to the problems mentioned above for example the Namibian economy grew by 4.2% in 2010.

Over the past decades the business environment of stock exchanges in the world has changed considerably. These transformed stock exchanges are increasingly operating at an internationally acceptable level, offering world-wide menus rather than merely serving a national appetite. The transition has been accompanied by an immense increase in international stock exchange integration and co-operation. For an example, stock exchanges have established strong operational ties with the usage of joint trading systems and the harmonization of regulations.

The most noteworthy merger activities include the Euronext merger, the OMX merger, the NYSE-Euronext merger, the NASDAQ-OMX merger and the merger between the London Stock Exchange and Borsa Italiana (Nielsson, 2007). Africa as a continent is not yet ready for a full regional integration like Europe and the United State of America (USA), but rather a partial integration in the form of cross listing of stocks, alliances and joint ventures (interview with professor Kalu Ojah in October 2011). Proponents of this approach have argued that partial regional integration, including trading platform, can bring greater efficiency, synergies, and economies of scale; attract foreign flow of funds; foster risk sharing and portfolio diversification; act as an impetus to financial sector reforms ,thereby broadening the competitiveness of regional financial systems and minimizing the risks of financial instability; deepen the stock market; and lead to economic growth (Faruqee, 2007) and (Demirguic et al., 2008).

Africa is manifesting itself as an emerging market and as such there are many promising investment opportunities within the region. It is however difficult for most African economies to take advantage of all those opportunities because of the high recorded poverty levels as well as low savings by Africans. This leaves almost the entire region being fully dependent on the banking institutions as a means of raising capital.

This dependency can been said to be responsible for the high cost of capital (debt) businesses experience. In order for Africa to record a higher economic growth rate, it needs to lessen its dependency on banks and explore other means of accessing funds. Well developed financial markets can bring about funding source diversification benefits, such as lower cost of capital (Ojah and Pillay, 2009). In an environment characterised by uncertainty, stock markets provide functions beyond capital/savings mobilisation. They also facilitate other functions such as risk allocation and risk sharing amongst market participants (Senbert and Otcheren, 2008).

1.3 Research Objectives

A properly functioning stock exchange can assist a country in attracting investment both locally and globally. These can be brought about by the promotion of capital market, with special emphasis on stock market development. Levine and Zervos (1996) found empirical evidence that greater stock market liquidity boosts economic growth. Levine (1996) found that over the period 1976-1994, countries that had liquid markets tended to grow faster than countries with illiquid markets. The bottom line is that the benefits of the stock markets to Africa are linked to economic performance. This linkage is explained by the role of a well functioning stock market system in lowering the cost of mobilising financial resources and in ensuring that these resources are allocated efficiently in the sense of being channelled to their highest valued use (Senbert and Otcheren, 2008). Stock markets' presence in an economy improves the overall business and investment climate and reinforces other elements of economic reform (Kenny and Moss, 1998)

If Senbert and Otcheren (2008) finding about stock market and economic growth holds merit, it seems beneficial for Africa to look into developing their capital markets. There are however many impediments hindering that development. Therefore the objective of this paper is to assess policies and options to overcome challenges faced by African stock exchanges. Also the other goal is to assess if there is a need for a Pan African Exchange (collaborative regional cross-listing) that might mitigate current short-comings of existing national exchanges.

1.4 Research Questions

From the preceding exposition, the following are specific questions that emanate from the study's objective:

- Which policies and options can be explored to address inefficiencies across the African stock exchanges?
- Is there a need for a cross –region collaborative stock exchange within the region?

1.5 Outline of the Research Report

The reminder of the study is organised as follows. The next section presents a fuller literature review of the research subject matter. Section 3 will be the methodology and interpretations of data. That will be followed by empirical results in section 4 and policy options and recommendations in section 5. The last section 6 will conclude and articulates the emerging thoughts on questions of the study which would have been duly analyzed.

2. LITERATURE REVIEW

This section is divided into two subsections which are (a) the role and importance of stock market development in economic growth, and (b) the empirical evidence found by different authors.

2.1 The Role of and Importance of Stock Market Development

'World stock markets are booming and stock market in developing countries account for a disproportionately large share of this boom. Investors are venturing into the world's newest markets and some are seeing handsome returns. But are developing countries themselves reaping any benefits from their stock market?' (Levine 1996).

Stock market has been associated with economic growth through its role as a source for new private capital (Mun, Siong & Thing, 2008). Many authors have found out that for the past three decades much emphasis was placed on the role of financial development to stimulate economic growth and overlooked the role of the stock market development. Levine and Zervos (1998) has mentioned in their paper that in emerging economies the evolution of stock market has a great impact on the operation of banking institution, while Paudel (2005) stated that stock market due to their liquidity enable firms to acquire much needed capital quickly , hence facilitating capital allocation, investment and growth.

Arguments as to why equity markets leads to economic growth

(i) There is more evidence that a more developed equity market may provide liquidity that lowers the cost of the foreign capital essential for development, thus, nation with greater development of equity markets tend to generate more domestic savings for economic growth (Benchivenga et al.,1996; Neusser and Kugler,1998).

(ii) The role of equity market provided incentive for managers to make investment decisions that may affect firm value in the long run (Dow and Gorton, 1997).

(iii) The ability of equity markets to generate information about the innovative activity of entrepreneurs (King and Levine, 1993) or the aggregate state of technology (Greenwood and Jovanovic, 1990).

(iv) The importance of stock market in providing portfolio diversification and enabling individual firms to engage in specialized production with efficiency gain (Acemoglu and Zilibotti, 1997).

Below follows a brief discussion on the above mentioned arguments

2.1.1 Liquidity

One of the vital ways in which stock market can affect economic growth is through their liquidity. Investors are generally reluctant to tie their savings and investments for longer periods especially if markets are illiquid. Levine (1991) and Bencivenga, Smith, Starr (1996) has stated that stock markets may arise to provide liquidity: savers have liquid assets, like equities, while firms have permanent use of the capital raised by issuing equities. Specifically, liquid stock markets reduce the downside risk and costs of investing in projects that do not pay off for a long time: with a liquid equity market, the initial investors do not loose access to their savings for the duration of the investment project because they can quickly, cheaply and confidently sell their stake in the company.

More liquid stock market ease investment in the long run, potentially more profitable projects, thereby improving the allocation of capital and enhancing prospects for long term growth (Levine&Zrevos 1996). Paudel (2005) confirmed that stock markets, on account of liquidity, facilitate firms to attain the much needed capital quickly; therefore, it facilitates capital allocation, investment and growth. According to Levine (1991), he emphasized the positive role of liquidity provided by stock exchanges on the size of new real asset investment through common stock financing. Investors are more easily persuaded to invest in common stocks, when there is little doubt on their marketability in the stock exchanges. This, in turn, motivates corporations to go to public when they need more finance to invest in capital goods.

2.1.2 Risk diversification

Saint-Paul(1992),Devereux and Smith(1994), demonstrated that stock markets provide a vehicle for diversifying risk. Their models also showed that greater risk diversification can influence growth by shifting investment into higher-return projects. Since high expected-return projects also tend to be comparatively risky, better risk diversification through internationally integrated stock markets will foster investment in higher return projects. Devereux and Smith(1994), also argue that opportunities for risk reduction through global diversification make high risk, high return domestic and international projects viable , and , consequently ,allocate savings between investment opportunities more efficiently.

The role of equity markets in providing portfolio diversification, enabling individual firms to engage in specialized production is bound to result in efficiency gains (Acemoglu and Zilibotti,

1997). Further to that, in the presence of stock markets which provide for various vehicles for transferring risk through which investors can confidently invest. What follows from that is that investors now have the opportunity of switching from low-risk to high-risk investments.

Obstfeld (1994) shows that international risk sharing through internationally integrated stock markets improves resource allocation and can accelerate growth.

2.1.3 Information acquisition about firms

Quality information about firms improves resource allocation and spur economic growth. Kyle (1994) states that, in larger more liquid markets, it will be easier for an investor who has obtained information to trade at posted prices. This will enable the investor to make money before the information becomes widely available and price change. Greenwood and Jovanovic (1990) show that the new stock markets provide timely and accurate information about the firms to the investors, which thus increase the investor's risk adjusted returns. Tirole (1993) argue that stock markets function as a monitor of managerial performance because the stock price incorporates performance information that cannot be extracted from a firm's current or future data. A poorly performing management may become the target for a take-over. Thus, the information that is reflected in a firm's share price is important for structuring managerial incentives to build up a firm's productivity, and hence economic growth in aggregate.

Kyle (1984) argues that, an investor can profit by researching a firm, before the information becomes widely available a prices change. Thus investors will be more likely to research and monitor firms. To the extent that larger, more liquid stock markets increase incentives to research firms, the improved information will improve resource allocation and accelerate economic growth.

2.1.4 Corporate control

Efficient stock markets assist in mitigating the principal-agent problem according to Diamong and Verracchia (1982). They went further by stating that it makes it easier to tie manager compensation to stock performances. This helps to align the interest of managers and owners. Laffont and Tirole (1988) argue that takeover threats induce managers to maximize the firm's equity price. Thus, Well- functioning stock markets that ease corporate takeovers can mitigate the principal-agent problem and promote efficient resource allocation and growth. Stock price is the mirror of the firm's performance, therefore if corporate governance suffers this will be reflected in the decreasing share price. Management would have a disincentive to work in their personal interests if their compensation is tied to stock performance (Jensen and Murphy, 1990).

Thus the emphasis is on the role of equity markets in providing proper incentives for managers to make sound investment decisions. Further to that they carried out the analysis of over 2000 CEO's and they indicated that the stock market enhance corporate control through reducing the principal- agent problem by aligning the interest of managers and owners in which case the managers would strive to maximize the firm value.

Bhide (1994) argues that stock market liquidity may negatively influence corporate governance because very liquid stock market may encourage investor myopia. Since investors can easily sell their shares, more liquid stock markets may weaken investors' commitment and incentive to exert corporate control. In other words, instant stock market liquidity may discourage investors from having long term commitment with firms whose shares they own and therefore create potential corporate governance problem with serious ramifications for economic growth.

2.1.5 Savings mobilization and productivity

Bencivenga and Smith (1991); King and Levine (1993) emphasizes that well functioning financial intermediaries and markets ameliorate information and transaction costs and thereby foster efficient resource allocation and hence faster long run growth. The models used also show that financial development can hurt growth. Specifically, financial development, by enhancing resource allocation and hence the returns to savings, may lower saving rates. Large stock markets can decrease the cost of mobilizing savings,thus facilitating investment in the most productive technologies (Greenwood and Smith,1996). Stock markets establish a market place where investors feel comfortable to relinquish control of their savings; because securities are in small denominations, a larger fraction of the population can participate in the stock market (Buelens & Cuyvers, 2005)

Another way in which financial markets can affect economic growth it's through efficient resource allocation. King and Levine (1993) proposed a model in which innovation activities serve as the engine of growth. A higher rate of successful innovations results in a higher growth rate of productivity. In the absence of a developed financial market, people might invest in projects which are not sustainable and which can be liquidated, instead of investing in assets that are more productive but financially illiquid.

2.2 Empirical Findings

In 1996 Levine and Zervos empirically evaluated the relationship between stock market development and long tern growth. Their data suggested that stock market development is

positively associated with economic growth. Moreover, instrumental variables procedures indicate a strong connection between the predetermined component of stock market development and economic growth in the long run.

Nazir, Nawaz and Gilani in 2010 explored the relationship between the stcok market development and economic growth in Pakistan for the period 1986 to 2008. They investigated the stock market development and economic growth relationship by using the two major measures of stock market development, namely: size of the market and liquidity prevalent in the market in terms of market capitalization. The results revealed that economic growth can be attained by increasing the size of the stock markets of a country as well as market capitalization in an emerging market like Pakistan.

In 2010 Boubakari and Jin explored causality relationship between stock market and economic growth based on the time series data compiled from five Euronext countries (Belgium , France, Portugal , Netherlands and United Kingdom) for the period 1995: Q1 to 2008: Q4. Granger causality test was used to find causality relationship between stock market proxies through market capitalization, total trade value, turnover ratio and economic growth (GDP and FDI). Casual relations were investigated for each country. The results suggest that the stock market growth and economic growth have a long run relationship. It revealed that the stock market liquidity do help to improve the future economy.

However, the stock market development effect is not found significant for causation of economic growth in Belgium and Portugal. The causality has been observed only in the countries where the stock market is significantly active and highly liquid.

Does stock market development cause economic growth? That was a question Deb and Mukherjee examined in 2008 using time series analysis for the Indian economy. They applied the techniques of unit-root tests and the long run Granger non causality test proposed by Toda and Yamamoto (1995), they also tested the casual relationship between the real GDP growth rate and three stock market development proxies. The results showed firstly bidirectional causality between real GDP growth rate and real market capitalization ratio. Secondly it showed unidirectional causality from both stock market activity and volatility to real GDP growth in Indian economy. So the Toda Yamamoto (1995) causality test results suggest that stock market development leads to economic growth at least for the period under study for the consideration, which is in line with the “supply leading’ hypotheses.

Mun, Siong and Thing explored causal relationships between stock market and the economy using formal tests of causality developed by C.J Granger. Yearly Malaysian data for the period

1977 – 2006 was used. The results indicated a "causal" relationship between the stock market and the economy. They found that while stock market Granger caused economic activity, no reverse causality was observed. Furthermore, they found that statistically lad lengths between fluctuations in the stock market and changes in the real economy are relatively short. The longest significant lag length observed from the results was two years. Their results were consistent with both the wealth effect and the forward looking nature of the stock market, but did not prove either.

Aretis et al (2001) through quarterly time series data, examine the relationship between stock market development and economic growth for five developed economies while controlling for the effect of banking and market volatility. The countries used for the study are: USA, UK, France, Germany, and Japan. The period covered 1968-1998 although the data span is different for different countries in the sample. The variables used in the VAR framework include the real GDP, the ratio of the market capitalization, domestic bank credit to private sector and stock market volatility. The results reveal that in Germany, there is bidirectional causality between banking system development and economic growth. Stock market on the other hand is weakly exogenous to the level of output. In the USA, financial development does not cause real GDP in the long run. Japan exhibits bidirectional causality between both banking system and stock market and the real GDP while in the UK, the results indicate evidence of unidirectional causality from banking system to stock market development in the long run but the causality between financial development and economic growth in the long run is very weak. The evidence in France suggests that in the long run both the stock market and banking system contribute to the real GDP but the contribution of the banking system is much stronger.

Carporale, Howello and Soliman (2005) based on the endogenous growth model study the linkage between stock market, investment and economic growth using vector auto regression (VAR) framework. They used quarterly data covering the period 1971Q1 to 1998Q4 for four countries: Chile, South Korea, Malaysia and Philippine. The stock market variables are measured through the ratio of market capitalization to GDP and ratio of value traded to GDP. The overall findings indicate that the causality between stock market components, investment and economic growth is significant and it is in line with endogenous growth model. It shows also that the level of investment is the channel through which stock markets enhance economic growth in the long run.

Singh (2008) utilizes time series data for India to examine the relationship between financial development and economic growth for the period 1951-1952 to 1995-1996. Using bivariate VAR,

impulse responses and variance decomposition their results suggest the existence of bidirectional causality between financial development and economic growth.

Coming a little back at home (Africa) Nowbutsing (2009) tested for the relationship between stock market development and economic growth for Mauritius. A time series econometric investigation was conducted for the 1989-2006. He analyzed both short run and long run relationship by constructing an ECM. Two measures of stock market development namely size and liquidity were used. The results showed that stock market development positively affect economic growth in Mauritius both in a short and long run. The implication of the results was that Mauritius need to continue the development of its stock market to facilitate investment. Abu on the other hand conducted the same for Nigerian country, the results stock market development (market capitalization) contributes positively to economic growth. The recommendations were that the Nigerian country.

Ndako (2010) examined the casual relationship between stock markets, banks and economic growth in South Africa using quarterly time series data from 1983: Q1 to 2007: Q4. He used vector error correction model (VECM) based causality tests to establish a link between financial development and economic growth. Impulse response functions (IRFs) ad variance decompositions (VDCs) were computed to further examine the short run dynamics among the variables in the system. Structural vector auto regression (SVAR) was also employed to further examine the link financial development and economic growth. The empirical results suggest that in the long run, there is evidence of bidirectional causality between financial development and economic growth using the banking system. While, when stock markets variables are used that is turnover ratio and value of shares traded, the results indicate unidirectional causality from economic growth to stock market system. The IRFs and VDCs indicate that financial development have short run impact on economic growth at the immediate year of initial shocks and VDCs shows that all the indicators for financial development contain some useful information in predicting the future path of economic growth

3. RESEARCH METHODOLOGY

This section presents the research methodology to be applied in this study. Based on the fact that each country is unique and some have comparative advantage over the others, Africa is divided into the North, South, East and West segments.The paper aims to address the question of whether regional cross-listing can promote stock market development in Africa.

As a preliminary step, trend analysis is performed over the period 1991 to 2010 by collecting data of two to three countries from each segment and fully analyzing the trend. Segmental groupings are outlined below. The paper is trying to compare the performances in different segments.

Table 2 : Segmental Grouping of countries

North	East	West	Southern
Egypt	*Kenya*	*Nigeria*	*Botswana*
Libya	*Tanzania*	*Ghana*	*Namibia*
Morocco	*Uganda*		*South Africa*

Secondly, ordinary least squares (OLS) regression analysis is performed with an objective to assess the impact of stock market development on economic growth in Africa. Three measures of stock market development as well as foreign direct investment (FDI expressed as GDP percentage) and inflation data are collected for the period 1991 to 2010. Measures used as proxies for stock market development are market capitalization as a share of GDP, number of listed firms and turnover ratio. Based on the regional groupings and performance thereof of individual countries, Kenya, Nigeria, Egypt and South Africa, were selected to be used to investigate the linkage between stock market development and economic growth. The countries used in the regression analysis were merely chosen because they perform better within their segments. Below are the OLS model specifications:

Model 1: $Y_t = \beta_0 + \beta_1 MktCap_t + \varepsilon_t$

Model 2: $Y_t = \beta_0 + \beta_1 Turnover_t + \varepsilon_t$

Model 3: $Y_t = \beta_0 + \beta_1 NumListed_t + \varepsilon_t$

Model 4: $Y_t = \beta_0 + \beta_1 MktCap_t + \beta_2 Turnover_t + \beta_3 NumListed_t + \beta_4 FDI_t + \beta_5 INF_t + \beta_6\ CRDT_t + \varepsilon_t$

Where:

Y_t = GDP growth

$MktCap_t$ = Market capitalization expressed as a percentage of GDP

$Turnover_t$ = Total value of traded shares (trading volume) as percentage of GDP

$NumListed_t$ = Total number of listed firms on the exchange transformed by taking natural logs

FDI_t = value of foreign direct investment as a percentage of GDP and;

$CRDTS_t$ = Domestic credit issued by banking sector as a percentage of GDP

INF_t = Inflation rate

Market capitalization as a share of GDP is measured as the value of listed shares divided by GDP. This ratio has been widely adopted in the literature as a stable measure of stock market development for two reasons. First, it is a proxy of the size of the stock market which is positively correlated with the ability to mobilize capital and diversify risk. Second, it is presumed to include firms past retained profits and future growth prospects so that a higher ratio signifies growth prospects and stock market development (Levine and Zervos,1998; Hargis 1998: and Karolyi,2004). The key weakness of this ratio is that a high ratio can be solely driven by appreciated values of few firms with little or no change in the amount of funds raised, and no change in the breadth of the stock market may be misinterpreted as stock market development (Adelegan,2008)

Turnover ratio is measured as the value of total shares traded divided by the market capitalization. It has been used in literature to measure stock market liquidity and development (Hargis, 1998; Moel, 2001). High turnover is expected to indicate lower transaction and funds' costs.

The number of listed firms has been used as a measure of stock market development in the literature because it is a proxy of the breadth of the stock market which is not subject to market valuations (Moel, 2001; Bekart et al, 2001; Rajan and Zingales, 2003; and Karolyi, 2004). Number of listed firms is a count of listed firms which is not tainted by fluctuations in the stock market valuations and possible bad measurement of GDP. However, the measure may be too slow-moving to fully capture high frequency changes in the market and can also be affected by firms restructuring, combinations, and mergers. Also, the measure may allocate a low score to countries which concentrated industrial structure with fewer but larger firms. The measure is adopted in this study because it is a count of listed firms which reflects the breadth of the market that is not affected by market valuation or movement in stock prices. (Adelegan, 2008)

Foreign direct investment (FDI) as a percentage of GDP is increasingly being recognized as a major source of economic development. The general belief is that FDI facilitates the transfer of

technology, organizational and managerial practices, skills and access to international market. (Nowbutsing, 2009)

The inflation rate signals a decline in a purchasing power of the money due to persistent rise or fall in prices (consumer prices). The inflation rate is included in this analysis because it is one of the most important economic forces consistently weighing on the value of a nation's currency.

Credit as a percentage of GDP is computed by taking domestic credit provided by the banking sector including all credit to various sectors on a gross basis, with the exception of credit to the central government and dividing it by the gross domestic product of the country. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data is available (including institutions that do not accept transferable deposits but incur such liabilities as time and savings deposits.

Lastly, after establishing a relationship between stock market development and economic growth the study goes further to perform regression analysis for the countries which have had cross listings. Africa has few cross listings and most of them are performed in their own segments for example South Africa will list in Botswana or Namibia; Kenya in Tanzania and Uganda. There is only one case were countries listed in other segments where Nigeria listed in the South African stock exchange. Data are collected for testing when countries list in their own segments and when they list in another segment. Regression is thus run again using the same variables as the earlier models with addition of dummy variables for testing the impact on economic growth when cross listing has occurred, also the impact of stock market development when there is a cross listing. The model to be fitted with inclusion of a dummy variable is specified as follows:

Model 5: $Y_t = \beta_0 + \beta_1 MktCap_t + \beta_2 FDI_t + \beta_3 INF_t + \beta_4 CRDTS_t + \beta_5 Dummy_t + \varepsilon_t$

Model 6: $Y_t = \beta_0 + \beta_1 Turnover_t + \beta_2 FDI_t + \beta_3 INF_t + \beta_4 CRDTS_t + \beta_5 Dummy_t + \varepsilon_t$

Model 7: $Y_t = \beta_0 + \beta_1 NumListed_t + \beta_2 FDI_t + \beta_3 INF_t + \beta_4 CRDTS_t + \beta_5 Dummy_t + \varepsilon_t$

Model 8: $MktCap_t = \beta_0 + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 CRDTS_t + \beta_4 Dummy_t * MktCap_t + \varepsilon_t$

Model 9: $Turnover_t = \beta_0 + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 CRDTS_t + \beta_4 Dummy_t * Turnover_t + \varepsilon_t$

Model 10: $NumListed_t = \beta_0 + \beta_1 FDI_t + \beta_2 INF_t + \beta_3 CRDTS_{t\ t} + \beta_4 Dummy_t * NumListed_t + \varepsilon_t$

Where:

Y_t = GDP growth

$MktCap_t$ = Market capitalization expressed as a percentage of GDP

$Turnover_t$ = Total value of traded shares (trading volume) as percentage of GDP

$NumListed_t$ = Total number of listed firms on the exchange transformed by taking natural logs

FDI_t = Foreign direct investment as percentage of GDP

$CRDTS_t$ = Domestic credit issued by banking sector as a percentage of GDP

INF_t = Inflation rate

$Dummy_t$ = 1 if there was a cross listing and 0 if the was no cross listing

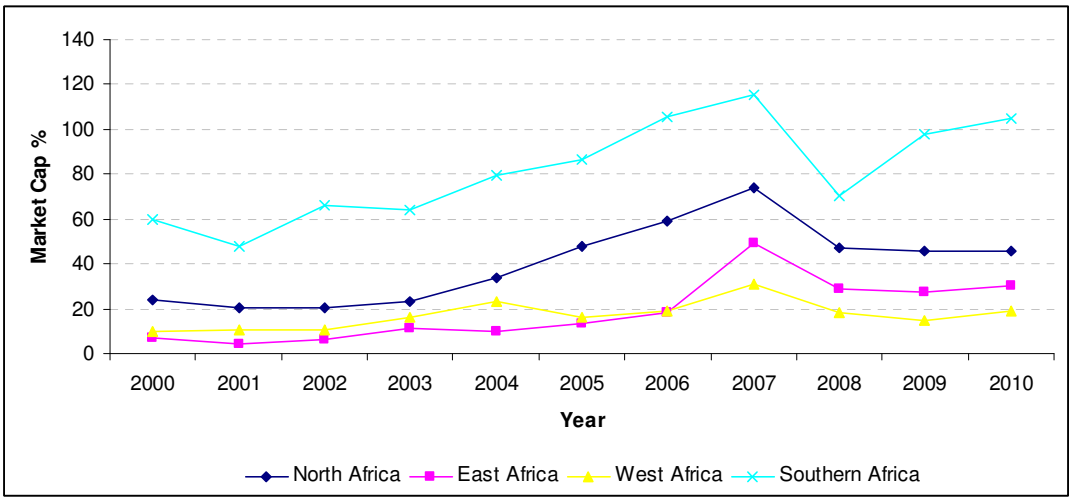
4. EMPIRICAL RESULTS

This section provides trend analysis of the pertinent tests variables.

4.1 Market Capitalization as % of GDP

Indeed, it's true what other researchers have found out about the stock markets in Africa, they are still relatively thin and small. From Figure 1, we can immediately observe that North and Southern Africa perform better than East and West Africa. Only three countries stand out Egypt, Morocco and South Africa with average mean market capitalization percentages of 58.55; 58.51 and 230.58 respectively. If you take South Africa out of the Southern Africa segment the percentage is as flat as that of West and East Africa.

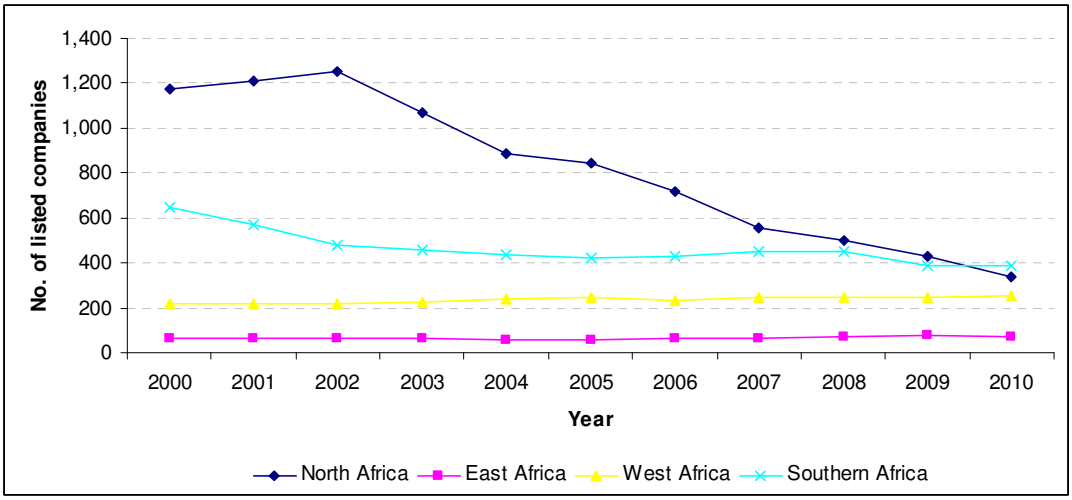
Figure 1: Market Capitalization as a % of GDP trend analysis (1991 – 2010)



4.2 Number of listed companies

Figure 2 exhibits few numbers of listings in the East and West Africa. North Africa has seen a decline over years, from listing 1,110 companies in 2001 to de-listings of about 889 companies in 2010. South Africa also previously experienced delisting of companies since 2001 but picked up again in 2010. The two mentioned countries are relatively the best performing countries in the whole African region. The other African countries have been experiencing increase in the number of companies they list even though the number is still low.

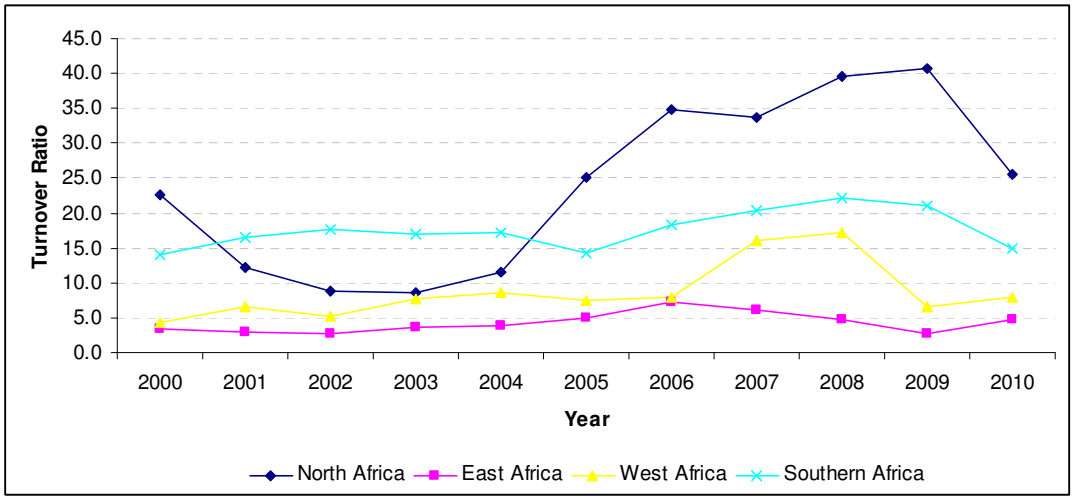
Figure 2 : Number of listed companies' trend analysis (1991 – 2010)



4.3 Turnover ratio

Of the three stock market development indicators that this paper has looked at, turnover ratio is probably the most important one as it measures how liquid the stock market is.

Figure 3: The turnover ratio trend analysis (1991 – 2010)



The New York Stock Exchange (NYSE) recorded a high percentage of 189.10 % while the London Stock Exchange recorded 101.9% in 2010. Perhaps it is unrealistic to compare African exchanges to the NYSE and the London Stock Exchange as the two exchanges are highly developed. Looking at a more realistic picture we then compare the African exchanges turnover

to that of BRIC countries, Brazil recorded 66.4% while India and China recorded 75.6%and 164.4 % respectively. Africa's turnover trend is recorded in Figure 3. It is evident that it is lagging its developed markets counterparts.

4.4 Data Sources

Historical yearly data on market capitalization as a % of GDP, Turnover Ratio, number of listed companies, FDI as a % of GDP and inflation rate (CPI series) for all countries sampled in this paper was collected from the World Bank Indicators database. The figures for the number of cross-listings in Africa were collected from various websites of stock exchanges for the countries under study. The paper had aimed to run regressions for all stock exchanges in the region but because of data limitations only five countries regression were performed. Various data sources were explored, with the World Bank database emerging as one with more data points for the selected countries in the sample.

4.5 Critical values for hypothesis testing

The table below shows critical values, p-values vis-à-vis significance levels that are used bases for assessing regression results of this study.

Table 3: Critical values for hypothesis testing

Critical value	Probability	Level of Significance
2.576	1%	***
1.960	5%	**
1.645	10%	*

The significance level of 1% represents the highest level of confidence which corresponds to a 99% confidence interval.

4.6 Regression Results

Regression was run for four countries which performed well within their segments namely Kenya, Nigeria, Egypt and South Africa for the period 1991 to 2010. The results are all arranged in a tabular form that are shown and discussed below.

Kenya Results

Table 4: Results for stock market development and economic growth in Kenya

Dependent variable: **GDP Growth (Y_t)**

	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	0.67 (0.89)	0.79 (1.07)	2.99 (5.97)***	2.14 (0.61)
Market Cap	0.09 (3.66)***			0.00 (0.00)
Turnover Ratio		0.38 (3.49)***		0.16 (0.68)
Number of Listed			0.00 (0.00)	-0.06 (-0.75)
FDI				0.45 (0.79)
Credit				-0.01 (-0.17)
Inflation				-0.08 (-2.43)***
F-statistic	13.36***	12.19***	0.66	4.71***
R-squared	0.43	0.40	0.04	0.68

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

The results of the relationship of stock market development and economic growth have been presented in Table 4 above. The first three models were run using stock market indicators, and two models (1 and 2) affect the economic growth positively and significantly. However, the impact of market capitalization is greater than the turnover available in the stock market, which can be assessed by the greater value of the coefficient of market capitalization as compared to that of turnover. This is in line with findings from Nazir, Nowaz and Gilani in 2010 which explored the relationship between the stock market development and economic growth.

Even when regression was run with other explanatory variables market capitalization still has an impact on economic growth, together with inflation rate.

Nigeria Results

Table 5: Results for stock market development and economic growth in Nigeria

Dependent variable: GDP Growth (Yt)

	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	2.73 (2.69)***	2.89 (3.45)***	4.91 (6.42)***	5.17 (2.39)**
Market Cap	0.12 (2.29)**			0.05 (0.47)
Turnover Ratio		0.19 (2.78)***		0.11 (0.68)
Number of Listed			-0.14 (-0.77)	-0.01 (-0.06)
FDI				-0.68 (-1.23)
Credit				0.02 -0.21
Inflation				0.00 (-0.04)
F- Statistics	5.24***	7.73***	0.59	1.43
R-squared	0.23	0.30	0.31	0.39

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

The same case as Kenya, the first three models were run to see the impact of stock market development in economic growth. From Table 5 above it is clear that the first two model being market capitalization and turnover affect economic growth as they are positively correlated to it and also they are significant. The impact of turnover ratio for Nigeria is greater than that of market capitalization, as can be assessed by the greater value of its coefficient as well as the level of significance of the variables. Same findings as Nazir, Nowaz and Gilani in 2010.

For Nigeria when stock market development indicators were run with other explanatory variables the model did not yield the desired outputs as all variables are statistically not significant except for the intercept.

Egypt Results

Table 6: Results for stock market development and economic growth in Egypt

Dependent variable: GDP Growth (Yt)

	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	3.34 (7.00)***	2.77 (6.67)***	4.4 (12.38)***	7.84 (2.79)***
Market Cap	0.03 (3.24*)**			0.02 (-0.76)
Turnover Ratio		0.06 (5.18)***		0.03 (1.47)
Number of Listed			-0.03 (-1.55)	-0.03 (0.45)
FDI				0.04 (0.15)
Credit				-0.06 (-1.73)
Inflation				-0.04 (-0.66)
F- Statistics	10.51***	26.81***	2.39**	5.09***
R-squared	0.37	0.59	0.12	0.7

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

The results of the relationship between stock market development and economic growth for Egypt have been presented in Table 6 above. From the three indicators mentioned on this paper only two indicators as shown in model 1 and 2 have an impact on the economic growth for Egypt. However, turnover has a greater impact on economic growth as compared to market capitalization; this is assed directly by observing the coefficient and the level of significance of turnover relative to that of market capitalization.

When regression was performed in model 4 with other explanatory variables none of the variables were statistically significant.

South Africa Results

Table 7: Results for stock market development and economic growth in South Africa

Dependent variable: GDP Growth (Yt)

	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	-0.92 (-0.59)	1.25 (-1.30)	2.83 (4.98)***	-2.26 (-0.97)
Market Cap	0.02 (2.42)**			0.01 (0.90)
Turnover Ratio		0.04 (1.70)*		-0.04 (-0.67)
Number of Listed			0.05 (0.60)	0.06 (0.65)
FDI				0.11 (0.29)
Credit				0.03 (1.59)
Inflation				-0.02 (-0.67)
F- Statistics	5.85***	2.89***	0.36	1.51
R-squared	0.23	0.14	0.19	0.41

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

The results of South Africa are relatively weak as compared to the other three mentioned countries. In the case of South Africa only market capitalization and turnover ratio seems to be having an impact on economic growth.

Having have looked the results of the four countries we can then provide some important implications for the regulators that they should focus on improving their stock market indicators (market capitalization and turnover ratio) as they affect economic growth to some extent as it has been statistically insignificant for all four countries under study. Findings thereof, are in line with what is documented in literature, which asserts that there exists a linkage between economic growth and stock market development. Africa as a region has now an important task of ensuring that their stock exchanges are running efficiently in order to enjoy the benefits that can be brought about by a well functioning exchange.

4.7 Cross-listing regression analysis

Table 8 : Cross listing table of South Africa in Botswana

Primary Listing	Secondary Listing	Company	Month	Year
South Africa	Botswana	Investec	Oct	1997
		Ellerine	Mar	1998

Table 7 above shows the number of cross listings that has taken place between South Africa and Botswana between 1991 till 2009. The regression results of that cross collaborative regional results are tabulated in table 8 and 9.

Table 9 : Results of cross listing of South Africa in Botswana

Dependent variable: GDP Growth (Yt)

	Model 5	Model 6	Model 7
Intercept	6.31 (1.48)	1.16 (0.35)	0.48 (0.14)
Market Cap	-0.13 (-1.67)*		
Turnover Ratio		0.00 (0.01)	
Number of Listed			-0.08 (-0.65)
FDI	0.56 (2.91)***	0.45 (2.22)**	0.49 (2.39)**
Credit	-0.05 (-1.30)	-0.07 (-1.83)*	-0.08 (-2.02)***
Inflation	-0.22 (-0.79)	0.00 (-0.02)	0.06 (0.22)
Dummy	3.09 (1.29)	3.48 (1.14)	3.63 (1.40)
F- Statistics	4.06***	2.92***	3.09***
R-squared	0.59	0.51	0.52

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

From the results above, only market capitalisation does have an impact on economic growth when there was a cross listing between Botswana and South Africa, economic growth was rather impacted more by explanatory variables such as FDI and credit.

The results below show how cross listing can have an impact on stock market development. The use of interactive models was used to try and determine such a relationship.

Table 10 : Results of cross listing on stock market development of Botswana

Dependent variable:	Market Cap $_t$	Turnover $_t$	NumbListed $_t$
	Model 8	**Model 9**	**Model 10**
Intercept	39.99	3.1	-9.88
	(4.41)***	(0.99)	(-1.57)
FDI	1.39	-0.15	0.82
	(2.14)**	(-0.67)	(1.81)*
Credit	0.07	-0.03	-0.11
	(0.69)	(-0.81)	(-1.47)
GDP Growth	-1.25	0.00	-0.52
	(-1.67)	(0.00)	(-1.05)
Inflation	-1.62	0.10	1.05
	(-2.17)**	(0.39)	(2.04)**
Dummy*Dependent Var	0.10	0.49	0.92
	(0.17)	(2.16)**	(2.21)**
F- Statistics	5.57***	3.40***	2.15**
R-squared	0.67	0.54	0.43

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

Unfortunately looking at the above results most variables appear to be statistically insignificant. A conclusion can be drawn from the fact that there were only two listings between Botswana and South Africa for the time period analysed by this study. However, the result is not statistically strong, the interaction of dummy variable and number of listed companies is statistically significant, implying that when there is cross listing stock market development improves in this case through the number of listed shares.

Table 11 : Cross listing table of South Africa in Namibia

Primary Listing	Secondary Listing	Company	Month	Year
South Africa	Namibia	Afrox	Feb	1995
		Anglo American	June	2001
		Alexandra Forbes		
		Banneman Resources Ltd	Apr	2008
		Barloworld	Sept	1997
		Deep Yellow Ltd	Jan	2008
		Edgars Cons	Jan	1997
		Firstrand	Jan	1998
		Investec	Oct	1997
		JD Group		
		Mutual& Federal	Nov	1992
		Metropolitan Holding	Sept	2001
		Nictus	Oct	1992
		Nedbank Group	Feb	2007
		Oceana Group	Sept	1998
		Old Mutual	July	1999
		Paladin Energy Ltd	Feb	2008
		Sanlam Ltd	Nov	1998
		Santam Ltd	Dec	1998
		Shoprite Holdings		2003
		Standard Bank Group	Dec	1992
		Trans Hex	July	1999
		Wooltru		
		Truworths	Oct	1998
		Vukile	June	2007

The above table shows the number of cross listings that has taken place between South Africa and Namibia. Having have studied the number of cross listings that has occurred in the entire African region, the two countries seemed to have collaborated many times as can be seen by the number of companies South Africa has listed on the Namibian Stock Exchange. The regression results of that collaboration are tabulated in table 11 and 12 below.

Table 12 : Results of cross listing of South Africa in Namibia

Dependent variable: GDP Growth (Yt)

	Model 5	Model 6	Model 7
Intercept	10.89	11.56	9.56
	(1.39)	(1.49)	(1.25)
Market Cap	-0.05		
	(-0.29)		
Turnover		0.16	
		(0.69)	
Number Listed			-0.03
			(-0.87)
FDI	-0.25	-0.19	-0.34
	(-0.68)	(-0.55)	(-0.92)
Credit	-0.08	-0.12	-0.06
	(-0.66)	(-0.96)	(-0.49)
Inflation	-0.05	-0.07	0.05
	(-0.18)	(-0.24)	(0.18)
Dummy	-1.37	-1.01	-2.11
	(0.84)	(-0.59)	(-1.21)
F- Statistics	0.35	0.44	0.5
R-squared	0.11	0.13	0.15

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

For Namibia the model is not good at all, all variables are statistically insignificant including the F statistics and the R-squared. This implies that for the period of study the variables used in the model did not have an impact in the economic growth of that country. The story however changes when we throw in cross listing element, the results thereof are shown in table 13 below the use of interactive variables were used. The results have shown that stock market development is greatly improved through market capitalisation as well as number of listed shares for Namibia. Both the interaction of dummy and stock market indicators is highly significant, implying that the more you cross listing the better will be your stock market indicators which will ultimately boast your economic growth in a long run.

Table 13 : Results of cross listing on stock market development of Namibia

Dependent variable:	Market Cap$_t$	Turnover $_t$	NumbListed $_t$
	Model 8	**Model 9**	**Model 10**
Intercept	0.12	-9.16	-55.64
	(0.01)	(-0.91)	(-1.31)
FDI	-0.07	-0.04	-0.35
	(-0.18)	(-0.09)	(-0.19)
Credit	0.17	0.22	0.89
	(1.31)	(1.46)	(1.43)
GDP Growth	0.00	0.30	1.46
	(-0.00)	(0.95)	(1.01)
Inflation	-0.24	0.16	1.68
	(0.85)	(0.47)	(1.24)
Dummy*Dependent Var	0.57	-0.08	1.12
	(4.07)***	(-0.14)	(3.07)***
F- Statistics	5.76***	0.58	2..99***
R-squared	0.67	0.17	0.52

t-statistics in parentheses. * significant at 10% level, ** significant at 5% level, *** significant at 1% level

An important conclusion to be drawn from the above is that, African stock markets should allow more cross-listings to happen within the region as it is evident that this has a positive impact on stock market development which will ultimately boosts economic growth.

5. POLICY OPTIONS AND RECOMMENDATIONS

1. Automation

This will reduce the costs and inefficiencies surrounding the African stock markets and increase the trading activity and liquidity. Automation will help to speed up operations and activities of exchange and reduces cost associated with manual systems. As shown by table 1 of infrastructural indicators of African stock exchange about four countries still utilizes the manual trading system.

2. Regional Integration

More cross listing; mergers should be looked at with a view of exchanging ideas and synergies. As has been shown in the regression for the case of South Africa and Namibia, the more cross listing improves the stock market development. This also helps to promote cost efficiency, and improves liquidity and price discovery.

3. Strengthen Regulation and Supervision

No investor will invest in a place where they feel like their investments are not safe. Regulation and supervision needs to play an important role of protecting investors from potential opportunistic behavior of insiders. Regular disclosure, transparency and enforcement needs also to be looked at very carefully. Some African countries do not have their statistics about exchanges operations recorded and it made this study difficult to run regressions for all countries (African) which has stock exchanges.

4. Attract Capital Flows

Africa still needs to attract more investment, which will be very beneficial for stock market development. As indicated in the problems surrounding African exchange the exchanges need to attract capital both locally and internationally.

5. Strengthen Education

Africa needs to increase public awareness about the functioning of the stock market and show people the effects of the stock markets to the whole economy once its operating efficiently. This will also boast the investor base as more people will be aware of investment opportunities that are available.

6. CONCLUSION

This paper empirical evaluates the relationship between stock market development and economic growth. A time series data for 4 countries from 1991 -2010 was analysed using three stock market indicators, namely market capitalisation, turnover ratio and number of listed shares, along with other explanatory variables of economic growth. The results of the study suggest that stock market development is associated with economic growth. These results are consistent with the findings by Levine and Zervos (1995) that stock markets can give a big boost to economic development. It also reveals that both the turnover ratio, which is used to measure liquidity, as well as market capitalisation, which measures breadth and depth of the market, have important impact on economic growth, as these variables were largely statistically significant. The study had aimed to run regression for all the stock exchanges in Africa but because of data limitations, the paper only focused on six countries.

The study went further and investigated whether cross-regional collaboration would foster the development of stock markets, and thus aid economic growth of the secondary listing country. Namibia and South Africa provided the answer on this examination by showing that the more you cross-list, the more you will improve your stock market development. Thus, an important inference from this study is that for Africa to take advantage of benefits brought by effective stock markets, they should look into cross listing within the region as it yields encouraging preliminary results.

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APPENDIX

Details of Regional cross listings of stocks for period 1992- 2009

Country Country of Primary listing	Countries cross-listed Country of secondary listing	Company	Month	1992	1993	1995	1997	1998	1999	2001	2003	2004	2005	2006	2007	2008	2009
WAEMU/Cote D'Ivoire	8 WAEMU countries 1/	All	Sept.					*									
	Nigeria and Ghana	Ecobank transnational	June & Sept.											*			
Kenya	Uganda	East African Breweries	Mar.							*							
		Kenya Airways	Mar.								*						
		Jubilee Insurance	Feb.											*			
	Tanzania	Kenya Airways	Oct.									*					
		East African Breweries	Jun.										*				
		Jubilee Insurance	Dec.											*			
Namibia	South Africa	Trustco 2/	Feb.														*
Nigeria	South Africa	Oando Plc	Nov.											*			
South Africa 2/	Botswana	Investec	Oct.				*										
	Botswana	Ellerine	Mar.					*									
	Ghana	AngloGold Ashanti	April									*					
	Malawi	Old Mutual	July						*								
	Namibia	Afrox	Feb.			*											
		Anglo-American	Jun.							*							
		Alexander Forbes															
		Bannerman Resources Ltd	Apr.													*	
		Barloworld	Sept.				*										
		Deep Yellow Ltd	Jan													*	
		Edgars Cons					*										
		Firstrand	Jan.					*									
		Investec	Oct.				*										
		JD Group															
		Mutual and Federal Insurance	Nov.		*												
		Metropolitan Holding	Sept.							*							
		Nictus	Oct.	*													
		Nedbank Group	Feb.												*		
		Oceana Group	Sept.					*									
		Old Mutual	July						*								
		Paladin Energy Ltd	Feb													*	
		Sanlam Ltd	Nov.					*									
		Santam Ltd	Dec					*									
		Shoprite Holdings									*						

		Standard Bank Group	Dec.	*				
		Trans Hex	July			*		
		Wooltru						
		Wooltru N						
		Truworths	Oct.		*			
		Vukile	Jun.					*
		Trans Hex						
		Xemplar Energy Corp. NM						
	Zambia	Shoprite Holdings					*	
	Zimbabwe	Halogen Holdings Societe An.						
		Old Mutual						
		Pretoria PortlandCement						

Source: Web sites of various stock exchanges.

REGRESSION RESULTS

RESULTS FOR KENYA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.652771
R Square	0.42611
Adjusted R	0.394227
Standard E	1.728396
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	39.92565	39.92565	13.36489	0.001808
Residual	18	53.77235	2.987353		
Total	19	93.698			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	0.665756	0.744022	0.894806	0.3827	-0.897377	2.228889	-0.624426	1.955938
MAC	0.095984	0.026255	3.655803	0.001808	0.040824	0.151144	0.050456	0.141512

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.635558
R Square	0.403933
Adjusted R	0.370819
Standard E	1.761474
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	37.84775	37.84775	12.19796	0.002599
Residual	18	55.85025	3.102792		
Total	19	93.698			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	0.795299	0.741632	1.072364	0.297724	-0.762811	2.35341	-0.490737	2.081336
Turnover	0.380364	0.108907	3.492558	0.002599	0.151559	0.609169	0.191512	0.569216

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.188178
R Square	0.035411
Adjusted R	-0.018177
Standard E	2.240784
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	3.317945	3.317945	0.660799	0.4269
Residual	18	90.38006	5.021114		
Total	19	93.698			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	2.99	0.501055	5.967414	1.2E-05	1.937323	4.042677	2.121139	3.858861
LS	0	0.116369	0	1	-0.244483	0.244483	-0.201792	0.201792

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.827489
R Square	0.684739
Adjusted R	0.539234
Standard E	1.507401
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	6	64.15866	10.69311	4.705941	0.009305
Residual	13	29.53934	2.272257		
Total	19	93.698			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 90.0%*	*Jpper 90.0%*	*Jpper 90.0%*
Intercept	2.407562	3.930334	0.612559	0.550733	-6.083409	10.89853324	-4.55279792	9.367922	9.060491
LS	-0.062063	0.082618	-0.751196	0.465917	-0.240549	0.116423674	-0.20837437	0.084249	-0.013409
Inflation	-0.089769	0.036858	-2.435513	0.030019	-0.169397	-0.010141393	-0.1550432	-0.024495	0.151407
MAC	0	0.040722	0	1	-0.087974	0.087974153	-0.07211564	0.072116	0.433701
Turnover	0.15763	0.184326	0.855169	0.407943	-0.240582	0.555842138	-0.16879928	0.484059	1.014981
FDI	0.454496	0.573133	0.793002	0.44201	-0.783684	1.692675394	-0.56048543	1.469477	0.137401
Credit	0.014338	0.085298	0.168098	0.869093	-0.169936	0.198613056	-0.13671836	0.165395	8.424914

RESULTS FOR NIGERIA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.474833909
R Square	0.225467241
Adjusted R	0.182437644
Standard E	2.645318476
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	36.6667229	36.66672	5.239818	0.03438
Residual	18	125.958777	6.99771		
Total	19	162.6255			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	2.730455642	1.01374439	2.693436	0.014857	0.600658	4.860254	0.972558	4.488353
MAC	0.128156706	0.05598649	2.289065	0.03438	0.010533	0.24578	0.031073	0.225241

SUMMARY OUTPUT

Regression Statistics	
R Square	0.300502956
Adjusted R	0.26164201
Standard E	2.513917444
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	48.8694435	48.86944	7.732775	0.012334
Residual	18	113.756056	6.319781		
Total	19	162.6255			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	2.89092247	0.83688976	3.454365	0.002829	1.132682	4.649163	1.439702	4.342143
Turnover	0.194152875	0.0698194	2.780787	0.012334	0.047468	0.340838	0.073082	0.315224

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.178731249
R Square	0.031944859
Adjusted R	-0.02183598
Standard E	2.957386715
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	5.19504875	5.195049	0.593982	0.450882
Residual	18	157.430451	8.746136		
Total	19	162.6255			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	4.911415706	0.76500166	6.420137	4.82E-06	3.304207	6.518625	3.584854	6.237977
LS	-0.14291604	0.1854361	-0.770702	0.450882	-0.532503	0.246671	-0.464474	0.178642

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.63059857
R Square	0.39765455
Adjusted R Sc	0.11964896
Standard Erro	2.74501968
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	64.66877	10.77813	1.430383	0.275752883
Residual	13	97.95673	7.535133		
Total	19	162.6255			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	5.17178211	2.162254	2.391848	0.032578	0.500516623	9.8430476	1.342575	9.00099
LS	-0.0120523	0.1984	-0.060747	0.952484	-0.440670184	0.4165655	-0.363406	0.339301
MAC	0.05319887	0.113573	0.468409	0.647249	-0.192161712	0.2985594	-0.147932	0.25433
Turnover	0.10740349	0.15574	0.689632	0.502551	-0.22905317	0.4438601	-0.168402	0.383209
FDI	-0.6809351	0.555234	-1.226393	0.241801	-1.880445108	0.5185748	-1.664217	0.302347
Credit	0.01652581	0.080513	0.205256	0.840551	-0.157412367	0.190464	-0.126058	0.159109
Inflation	-0.0019036	0.048487	-0.03926	0.96928	-0.106654353	0.1028472	-0.087772	0.083964

RESULTS FOR EGYPT

SUMMARY OUTPUT

Regression Statistics	
R Square	0.368731971
Adjusted R	0.333661525
Standard E	1.271955116
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	17.01034	17.01034	10.51404	0.004519
Residual	18	29.12166	1.61787		
Total	19	46.132			

	Coefficients	*tandard Erı*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	3.338876462	0.476866	7.001707	1.55E-06	2.337018	4.340735	2.51196	4.165792
MAC	0.033417435	0.010306	3.242536	0.004519	0.011765	0.055069	0.015546	0.051289

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.773548944
R Square	0.598377969
Adjusted R	0.576065634
Standard E	1.014550462
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	27.60437	27.60437	26.81826	6.32E-05
Residual	18	18.52763	1.029313		
Total	19	46.132			

	Coefficients	Standard E	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0	Upper 90.0
Intercept	2.774807304	0.415905	6.671735	2.93E-06	1.901023	3.648591	2.053602	3.496013
Turnover	0.064981739	0.012548	5.178635	6.32E-05	0.038619	0.091344	0.043223	0.086741

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.342384165
R Square	0.117226916
Adjusted R	0.068183967
Standard E	1.504144052
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	5.407912	5.407912	2.390291	0.139492
Residual	18	40.72409	2.262449		
Total	19	46.132			

	Coefficients	*tandard Erı*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	4.401781628	0.355542	12.38047	3.05E-10	3.654815	5.148748	3.785249	5.018315
LS	-0.03272799	0.021169	-1.546057	0.139492	-0.077202	0.011746	-0.069436	0.00398

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.837685995
R Square	0.701717826
Adjusted R	0.56404913
Standard E	1.028828806
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	6	32.37165	5.395274	5.097149	0.006756
Residual	13	13.76035	1.058489		
Total	19	46.132			

	Coefficients	*tandard Erı*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	7.836220205	2.811652	2.787052	0.015407	1.762016	13.91042	2.856972	12.81547
Inflation	-0.039025884	0.059305	-0.658054	0.521987	-0.167147	0.089095	-0.144051	0.065999
MAC	0.022327076	0.029421	0.758888	0.461458	-0.041233	0.085887	-0.029775	0.074429
Turnover	0.033535222	0.022808	1.470339	0.165255	-0.015738	0.082809	-0.006856	0.073926
FDI	0.039876271	0.257435	0.154899	0.87928	-0.516278	0.59603	-0.416024	0.495776
Credit	-0.055262076	0.032019	-1.725902	0.108038	-0.124435	0.013911	-0.111966	0.001442
LS	0.008962055	0.01981	0.452399	0.658439	-0.033835	0.051759	-0.02612	0.044044

RESULTS FOR SOUTH AFRICA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.495318693
R Square	0.245340608
Adjusted R Square	0.203415086
Standard Error	2.022204387
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	23.92991	23.92991	5.85182	0.026374
Residual	18	73.60759	4.089311		
Total	19	97.5375			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	-0.92042965	1.553558	-0.592466	0.560909	-4.184333	2.343474	-3.614397	1.773538
Mac	0.019663274	0.008128	2.419054	0.026374	0.002586	0.036741	0.005568	0.033759

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	13.53023	13.53023	2.899085	0.105835
Residual	18	84.00727	4.66707		
Total	19	97.5375			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*
Intercept	1.253778752	0.964407	1.300052	0.209985	-0.772364	3.279922	-0.418564
Turnover	0.044392355	0.026072	1.70267	0.105835	-0.010383	0.099168	-0.000818

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.140762587
R Square	0.019814106
Adjusted R Square	-0.03464067
Standard Error	2.304643641
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	1.932618	1.932618	0.363864	0.553894
Residual	18	95.60488	5.311382		
Total	19	97.5375			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	2.835602334	0.580048	4.888564	0.000118	1.616966	4.054238	1.829762	3.841443
LS	0.049592744	0.082215	0.603211	0.553894	-0.123134	0.222319	-0.092973	0.192158

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.64034383
R Square	0.41004022
Adjusted R	0.137751091
Standard E	2.103901175
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	6	39.99429797	6.665716	1.505900075	0.251422
Residual	13	57.54320203	4.4264		
Total	19	97.5375			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	-2.262048532	2.308785025	-0.979757	0.345088225	-7.249875	2.72577826	-6.350753	1.826656
Mac	0.0112468	0.012466243	0.90218	0.38337246	-0.015685	0.03817848	-0.01083	0.033324
Turnover	-0.036884808	0.055196976	-0.66824	0.515670515	-0.156131	0.08236101	-0.134635	0.060865
FDI	0.113563022	0.381344102	0.297797	0.77056419	-0.710281	0.93740687	-0.561772	0.788898
Inflation	-0.021450426	0.032111629	-0.667996	0.51582135	-0.090823	0.04792253	-0.078318	0.035417
Credit	0.029449053	0.018483402	1.59327	0.135113253	-0.010482	0.06938002	-0.003284	0.062182
LS	0.055714623	0.085737161	0.649831	0.527118239	-0.129509	0.2409385	-0.09612	0.207549

CROSS LISTING REGRESSION RESULTS

SOUTH AFRICA LISTING IN BOTSWANA

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.769573
R Square	0.592243
Adjusted R Square	0.446616
Standard Error	2.543753
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	131.576	26.31519	4.066835	0.017245314
Residual	14	90.58953	6.470681		
Total	19	222.1655			

	Coefficients	*tandard Erı*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	6.306459	4.255054	1.48211	0.160468	-2.81972277	15.43264	-1.188009	13.80093
Inflation	-0.21876	0.274099	-0.798106	0.438138	-0.806643048	0.369124	-0.701533	0.264013
MAC	-0.133121	0.079647	-1.671377	0.11684	-0.303946779	0.037706	-0.273404	0.007163
FDI	0.562437	0.193221	2.91085	0.011395	0.148019505	0.976855	0.222115	0.90276
Dummy	3.09697	2.399317	1.290772	0.217692	-2.049052269	8.242993	-1.128971	7.322911
Credit	-0.046237	0.035442	-1.304588	0.213072	-0.122252787	0.029778	-0.108662	0.016187

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.714761
R Square	0.510884
Adjusted R Square	0.3362
Standard Error	2.785995
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	113.5008	22.70015	2.924612	0.051756885
Residual	14	108.6647	7.761766		
Total	19	222.1655			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	1.168485	3.331815	0.350705	0.731031	-5.977548892	8.314518	-4.699876	7.036845
Inflation	-0.004634	0.267013	-0.017355	0.986398	-0.577319184	0.568051	-0.474926	0.465658
Turnover	0.002551	0.275402	0.009264	0.99274	-0.588126465	0.593229	-0.482516	0.487619
FDI	0.452207	0.202871	2.229038	0.042707	0.017092186	0.887322	0.094888	0.809526
Dummy	3.477945	3.044047	1.14254	0.272393	-3.050886293	10.00678	-1.883566	8.839456
Credit	-0.067972	0.037156	-1.829377	0.088718	-0.147663155	0.011719	-0.133415	-0.002529

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.724738164
R Square	0.525245407
Adjusted R Square	0.355690195
Standard Error	2.744788459
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	5	116.6914	23.33828	3.097784	0.04339
Residual	14	105.4741	7.533864		
Total	19	222.1655			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	0.484053545	3.352785	0.144374	0.887263	-6.706954	7.675061369	-5.42124	6.389347
LS	-0.075671143	0.116267	-0.650841	0.525688	-0.325038	0.173696038	-0.280453	0.12911
Inflation	0.061309248	0.280167	0.218831	0.82994	-0.539589	0.66220717	-0.432151	0.55477
Dummy	3.630276562	2.585019	1.404352	0.182009	-1.914037	9.174589927	-0.922743	8.183296
FDI	0.497107934	0.207868	2.391462	0.031378	0.051276	0.94293992	0.130988	0.863228
Credit	-0.075623224	0.037409	-2.02154	0.06277	-0.155857	0.00461049	-0.141512	-0.009735

Regression Statistics	
Multiple R	0.815913
R Square	0.665713
Adjusted R	0.546325
Standard E	7.794086
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	1693.661	338.7322	5.576044	0.004948
Residual	14	850.4688	60.74777		
Total	19	2544.13			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	39.98762	9.069384	4.409078	0.000594	20.53573	59.43951	24.01362	55.96162
Inflation	-1.615103	0.744193	-2.170276	0.04768	-3.211237	-0.018969	-2.925857	-0.304349
MAC*D	0.104439	0.601258	0.1737	0.864587	-1.185131	1.394009	-0.954563	1.163441
FDI	1.395974	0.650835	2.144897	0.04999	7.16E-05	2.791877	0.249652	2.542297
Credit	0.078594	0.112971	0.695701	0.498003	-0.163704	0.320892	-0.120383	0.277571
GDP	-1.248196	0.747798	-1.669162	0.117285	-2.852064	0.355671	-2.565301	0.068908

Regression Statistics	
Multiple R	0.740612
R Square	0.548507
Adjusted R	0.387259
Standard E	2.68396
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	122.521	24.50421	3.401642	0.032119
Residual	14	100.851	7.20364		
Total	19	223.372			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	3.100111	3.125409	0.991906	0.338079	-3.603225	9.803447	-2.404703	8.604926
Inflation	0.101878	0.254717	0.399967	0.695217	-0.444435	0.648191	-0.346757	0.550513
Turnover*D	0.493831	0.228594	2.160294	0.048576	0.003545	0.984118	0.091206	0.896457
FDI	-0.150272	0.224088	-0.670594	0.51339	-0.630893	0.330349	-0.544961	0.244416
Credit	-0.031493	0.03891	-0.809385	0.431835	-0.114948	0.051961	-0.100027	0.03704
GDP	0.001257	0.257004	0.004889	0.996168	-0.549963	0.552476	-0.451408	0.453921

Regression Statistics	
Multiple R	0.659499
R Square	0.434939
Adjusted R	0.233132
Standard E	5.401446
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	314.3995	62.87989	2.155221	0.118384
Residual	14	408.4587	29.17562		
Total	19	722.8581			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	-9.881159	6.303911	-1.567465	0.139325	-23.4017	3.639386	-20.9843	1.221984
Inflation	1.058417	0.517456	2.045423	0.060082	-0.051416	2.16825	0.147016	1.969818
LS*D	0.916625	0.414519	2.211296	0.044155	0.027569	1.805681	0.186528	1.646722
FDI	0.816741	0.451457	1.809124	0.09195	-0.151537	1.785019	0.021586	1.611896
Credit	-0.111097	0.075521	-1.471072	0.163389	-0.273073	0.050879	-0.244112	0.021919
GDP	-0.522161	0.499625	-1.045106	0.313684	-1.593751	0.549428	-1.402157	0.357834

SOUTH AFRICA LISTING IN NAMIBIA

Regression Statistics	
Multiple R	0.333618
R Square	0.111301
Adjusted R	-0.206092
Standard E	3.446881
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	20.83164	4.166329	0.350671838	0.87338
Residual	14	166.3339	11.88099		
Total	19	187.1655			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Upper 90.0%*
Intercept	10.89409	7.805659	1.395666	0.184557781	-5.847384	27.63556	-2.854097	24.64228
mac	-0.051938	0.177052	-0.293347	0.773560699	-0.431676	0.327801	-0.363781	0.259906
inflation	-0.051931	0.287233	-0.180796	0.85911896	-0.667984	0.564123	-0.557837	0.453976
fdi	-0.24836	0.3646	-0.681186	0.506865781	-1.030349	0.533629	-0.890533	0.393813
dummy	-1.373416	1.62614	-0.844587	0.412542495	-4.86114	2.114308	-4.237553	1.490721
Credit	-0.081703	0.124669	-0.655356	0.522862587	-0.349092	0.185686	-0.301284	0.137879

Regression Statistics	
Multiple R	0.368533
R Square	0.135816
Adjusted R	-0.172821
Standard E	3.399006
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	25.42011	5.084022	0.440051576	0.813348
Residual	14	161.7454	11.55324		
Total	19	187.1655			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Upper 90.0%*
Intercept	11.55689	7.750624	1.491091	0.158122756	-5.066547	28.18032	-2.094364	25.20814
turnover	0.155992	0.223841	0.696887	0.497282622	-0.324099	0.636083	-0.238261	0.550245
inflation	-0.067208	0.279437	-0.240512	0.81341991	-0.666541	0.532125	-0.559383	0.424967
fdi	-0.187716	0.342681	-0.547785	0.592466379	-0.922694	0.547263	-0.791284	0.415852
dummy	-1.011519	1.703097	-0.593929	0.562034074	-4.664299	2.64126	-4.011201	1.988163
Credit	-0.123187	0.128927	-0.955477	0.355545372	-0.399708	0.153334	-0.350268	0.103894

Regression Statistics	
Multiple R	0.38988
R Square	0.152007
Adjusted R	-0.150848
Standard E	3.367015
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	28.45042	5.690083	0.501913031	0.770013
Residual	14	158.7151	11.33679		
Total	19	187.1655			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Upper 90.0%*
Intercept	9.564455	7.636611	1.252448	0.230925217	-6.814446	25.94336	-3.885985	23.01489
Ls	-0.039357	0.04508	-0.873054	0.397361546	-0.136045	0.05733	-0.118758	0.040043
inflation	0.051601	0.288181	0.179057	0.86045824	-0.566485	0.669687	-0.455975	0.559176
fdi	-0.33829	0.366143	-0.923928	0.371174901	-1.123589	0.447009	-0.983181	0.306602
Credit	-0.060716	0.123282	-0.492494	0.63000356	-0.325128	0.203697	-0.277853	0.156422
dummy	-2.114176	1.746653	-1.210415	0.246159325	-5.860375	1.632023	-5.190574	0.962222

Regression Statistics	
Multiple R	0.820374
R Square	0.673014
Adjusted R	0.556233
Standard E	3.539261
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	360.9506	72.19012	5.76305302	0.004296
Residual	14	175.3691	12.52637		
Total	19	536.3197			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	0.116256	8.64069	0.013455	0.989455025	-18.41618	18.64869	-15.10268	15.33519
inflation	-0.240619	0.282795	-0.850863	0.409163165	-0.847153	0.365915	-0.738708	0.25747
fdi	-0.069407	0.389579	-0.17816	0.861149882	-0.904972	0.766157	-0.755577	0.616763
Credit	0.165778	0.126809	1.307311	0.212170984	-0.106199	0.437756	-0.057571	0.389128
mac*D	0.572853	0.140627	4.073569	0.001139489	0.271238	0.874467	0.325166	0.82054
gdp	-0.000385	0.269052	-0.001431	0.998878568	-0.577443	0.576673	-0.474268	0.473498

Regression Statistics	
Multiple R	0.415159
R Square	0.172357
Adjusted R	-0.123229
Standard E	4.218401
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	51.88125	10.37625	0.58310217	0.712778
Residual	14	249.1287	17.79491		
Total	19	301.01			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*Jpper 90.0%*
Intercept	-9.164837	10.06708	-0.910377	0.378031469	-30.75657	12.4269	-26.89608	8.56641
inflation	0.15748	0.335603	0.469245	0.646118363	-0.562316	0.877276	-0.43362	0.74858
fdi	-0.037551	0.422609	-0.088854	0.930456199	-0.943957	0.868856	-0.781896	0.706795
Credit	0.219984	0.151333	1.45364	0.168093984	-0.104593	0.544562	-0.046561	0.486529
turnover*D	-0.083382	0.600527	-0.138849	0.891547175	-1.371385	1.20462	-1.141097	0.974332
gdp	0.304691	0.317936	0.958341	0.35414956	-0.377214	0.986595	-0.255293	0.864674

Regression Statistics	
Multiple R	0.719096
R Square	0.517099
Adjusted R	0.344635
Standard E	17.08113
Observatio	20

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	5	4373.988	874.7975	2.998295847	0.047994
Residual	14	4084.709	291.7649		
Total	19	8458.697			

	Coefficients	*tandard Erı*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*.ower 90.0%*	*Jpper 90.0%*
Intercept	-55.6454	42.62882	-1.305347	0.212820841	-147.0751	35.78434	-130.728	19.43718
LS*D	1.126973	0.366719	3.073124	0.008261764	0.340439	1.913507	0.481067	1.772879
inflation	1.688594	1.358915	1.242605	0.234424374	-1.225988	4.603176	-0.704876	4.082064
fdi	-0.355279	1.882588	-0.188718	0.853021842	-4.393029	3.682471	-3.6711	2.960542
Credit	0.893577	0.623776	1.432528	0.173942609	-0.44429	2.231444	-0.205087	1.992241
gdp	1.457852	1.448511	1.006449	0.331279119	-1.648896	4.5646	-1.093425	4.00913